

REMARKS

The Non-final Office Action, mailed September 11, 2007, considered claims 1–28. Claims 1–6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Elliot, NPL “Declarative Event-Oriented Programming” (hereinafter Elliot), in view of Grinstein et al., U.S. Patent No. 6,714,201 (filed Apr. 14, 2000) (hereinafter Grinstein). Claims 7–9, 16, and 18–28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Elliot in view of Grinstein, and further in view of Hudson, NPL “Animation Support in a User Interface Toolkit: Flexible, Robust, and Reusable Abstractions” (hereinafter Hudson). Claims 10–15 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Elliot in view of Grinstein, and further in view of Milne, U.S. Patent No. 5,553,222 (filed Dec. 19, 1995) (hereinafter Milne).¹

By this response, claims 1 and 18 are amended such that claims 1–28 remain pending. Claims 1, 18, 26 and 27 are independent claims which remain at issue. Support for the amendments may be found within Specification pp. 5–8, 56–67, 71–72, 82–85 and 98.²

As reflected in the claims, the present invention is directed generally toward methods, computer program products, and systems in which timing intervals are generated by a high-level component from clock properties, and used by a low-level component to interpolate values for smooth animation. Claim 1 recites, for instance, in combination with all the elements of the claim, a system which includes a first component comprising a tree of clocks hierarchically related by synchronization rules and primitives, an event list generator, an interval generator, and a high-level timing component. The clocks correspond to clock properties received from an application program, the event list generator comprises a state machine and groups events initially scheduled by specified clock properties together with explicit interactive events received with respect to an animation into an event list, the states of the state machine comprise inactive, active, pause, and resume, and the interval generator uses the event list to compute a corresponding interval list. The system also includes a second component comprising a low-

¹ Although the prior art status of the cited art is not being challenged at this time, Applicants reserve the right to challenge the prior art status of the cited art at any appropriate time, should it arise. Accordingly, any arguments and amendments made herein should not be construed as acquiescing to any prior art status of the cited art.

² However, it should be noted that the present invention and claims as recited take support from the entire Specification. As such, no particular part of the Specification should be considered separately from the entirety of the Specification.

level timing component and a low-level computation engine. The second component receives the interval list from the first component and the low-level component interpolates parameter intervals to obtain instantaneous values and decodes instructions into rendering commands to be executed by a graphics device. The low-level computation engine controls output based on current time and interpolates the location of an animated object based on interval data and current time. The system also includes a system clock which provides consistent time to both the high-level timing component and the low-level timing component and enabling the first component and the second component to remain in synchronization and an animation function subsystem that determines a current value for a varying property of an animated object.

Claim 18 recites, in combination with all the elements of the claim, a method which includes a first component receiving clock data and graphics data; an event list generator grouping together explicit interactive events with events initially scheduled by specified clock properties; the event list generator walking a combined list of scheduled and interactive events and inserting implicit events and generating an event list from clock properties and interactive events. The method also includes pairing off events to form intervals, wherein there is an interval for every pair of consecutive events; an interval generator generating an interval list from the event list and the clock data; a second component receiving the interval list and providing a progress value to a low-level animation subsystem, and the low-level animation subsystem determining a current value for a varying property of an animated object.

Claim 27 is a computer program product embodiment of the method of claim 18.

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable in view of Elliot, and Grinstein. The Applicants submit, however, that Elliot and Grinstein, both separately and in combination, fail to teach or suggest each and every element of claim 1 as now recited.

In particular, Elliot and Grinstein fail to teach or suggest a tree of clocks hierarchically related by synchronization rules and primitives. Further, Elliot and Grinstein also fail to teach or suggest the clocks correspond to clock properties received from an application program.

Elliot and Grinstein also fail to teach or suggest an event list generator comprising a state machine. The Office action cited to Elliot p. 57, 2nd column, and asserted that a "sequential chain of events" as being the equivalent of a state machine. However, a sequential chain of events is merely a set of events in some temporal order and fails to teach or suggest a state machine.

Elliott and Grinstein also fails to teach or suggest an event list generator which groups events scheduled by specified clock properties together with explicit interactive events received with respect to an animation into an event list. The office action cited to "stack manager"; Elliot § 8, 1st column; and "the stacker function returns an event whose occurrences contain a snapshot of the top of the stack at each legitimate pop"; Elliot p. 61, 1st column; as teaching the recited grouping. However, a stack manager and "an event whose occurrences contain a snapshot of the top of the stack" fails to teach grouping events scheduled by specified clock properties together with explicit interactive events received with respect to an animation into an event list.

Elliott and Grinstein also fails to teach or suggest states of the state machine comprise inactive, active, pause, and resume.

Elliott and Grinstein also fails to teach or suggest the low-level component interpolates parameter intervals to obtain instantaneous values and decodes instructions into rendering commands to be executed by a graphics device.

Further, Elliott and Grinstein also fails to teach or suggest a system clock which provides consistent time to both the high-level timing component and the low-level timing component and enabling the first component and the second component to remain in synchronization. The office action cited "a simulation clock [which] can be configured by [a] programmer as a real-time clock;" Grinstein col. 15, Table 3; but, notably, this does not teach that consistent time is provided to *both* a high-level timing component and a low-level timing component.

Because of at least these distinctions, Elliott and Grinstein fail to teach each and every element of claim 1 as now recited so a rejection under 35 U.S.C. § 103 in view of Elliot and Grinstein would be improper and should be withdrawn. Correspondingly, the Applicants respectfully request favorable reconsideration of claim 1.

Claim 18 was rejected under 35 U.S.C. § 103 as being unpatentable in view of Elliot, Grinstein and Hudson. The Applicants submit, however, that Elliot, Grinstein, and Hudson, separately and in combination, fail to teach or suggest each and every element of claim 18 as now recited.

In particular, Elliot, Grinstein, and Hudson fail to teach or suggest an event list generator grouping together explicit interactive events with events initially scheduled by specified clock properties.

Elliot, Grinstein, and Hudson also fail to teach or suggest an event list generator walking a combined list of scheduled and interactive events and inserting implicit events. Further, Elliot, Grinstein, and Hudson also fail to teach or suggest pairing off events to form intervals, wherein there is an interval for every pair of consecutive events.

Notably, the office action asserted that "parameter values that uniformly track the passage of time;" Hudson p. 5, last paragraph; teaches a second component providing a progress value to a low-level animation subsystem. The Applicants submit, however, that a parameter value which tracks the passage of time fails to teach all the elements of a) a second component, b) providing a progress value, c) to a low-level animation subsystem. Hudson Figure 6, which discloses a "translation from time to space," also fails to teach or suggest a low-level animation subsystem determining a current value for a varying property of an animated object.

Because of at least these distinctions as pointed out for both the previously recited elements and the claim as now amended, Elliott, Grinstein, and Hudson fail to teach each and every element of claim 18 as now recited so a rejection under 35 U.S.C. § 103 in view of Elliott, Grinstein, and Hudson would be improper and should be withdrawn. Correspondingly, the Applicants respectfully request favorable reconsideration of claim 18.

As claim 27 recites a computer program product embodiment of the method recited in claim 18, the above discussion of claim 18 applies equally to claim 27. Correspondingly, a rejection of claim 27 under 35 U.S.C. § 103 in view of Elliott, Grinstein, and Hudson would be improper and should be withdrawn. The Applicants respectfully request favorable reconsideration of claim 27.

In view of the foregoing, Applicants respectfully submit that the other rejections to the claims are now moot and do not, therefore, need to be addressed individually at this time. It will be appreciated, however, that this should not be construed as Applicants acquiescing to any of the purported teachings or assertions made in the last action regarding the cited art or the pending application, including any official notice. Instead, Applicants reserve the right to challenge any of the purported teachings or assertions made in the last action at any appropriate time in the future, should the need arise. Furthermore, to the extent that the Examiner has relied on any Official Notice, explicitly or implicitly, Applicants specifically request that the Examiner provide references supporting the teachings officially noticed, as well as the required motivation or suggestion to combine the relied upon notice with the other art of record.

In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney at 801-533-9800.

Dated this 12th day of December, 2007.

Respectfully submitted,



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